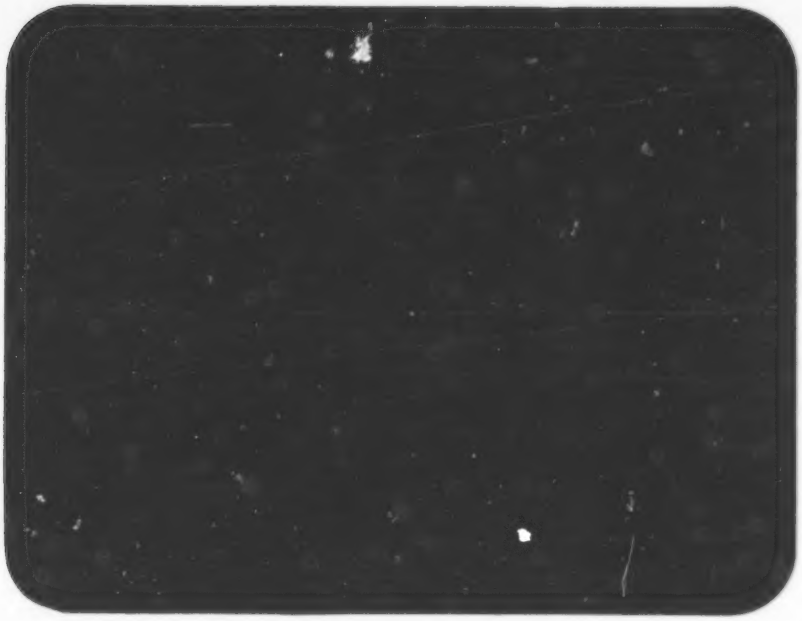

Province of British Columbia
Ministry of Forests

F.S.189(1)INF 81/2

SOO TSA OPTIONS REPORT

Approved by: _____ April, 1990

for. K.J. Ingram
Regional Manager
Vancouver Forest Region
Ministry of Forests

90-05557/

PROLOGUE

The Options Report for the Soo Timber Supply Area is an intermediate step in the preparation of the Resource Management Plan for this area. The review of this report constitutes one of the opportunities for public input into the planning process. This report, and the input received, will provide basic information for the development of a draft Resource Management Plan for additional public comment.

The Options Report contains a number of potential management choices and lists the anticipated impacts of each. This is not a complete listing of the possibilities, but demonstrates some of the choices available. The purpose of this report is to solicit public response regarding these and other potential options for forest management direction in this TSA. The Ministry of Forests is seeking feedback regarding management preference as a basis for development of a Resource Management Plan for this TSA.

Although the options and scenarios presented in this report deal with timber, recreation and fish and wildlife habitat relatively independently, the "option" which will form the basis of the Resource Management Plan will integrate forest resource uses.

Responses will be reviewed by the Regional Manager who will provide advice to the Chief Forester concerning forest management objectives in this TSA. The Chief Forester requires an option which successfully deals with identified forest resource management issues. The option(s) selected by the Chief Forester will form the basis for a draft Resource Management Plan.

The draft Resource Management Plan will be subject to public review and comment before a final plan is recommended by the Regional Manager to the Chief Forester.

The Resource Management Plan developed through this process and approved by the Chief Forester will provide strategic direction to Ministry of Forests resource management activities in the Soo TSA for the next five years.

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INTRODUCTION.

The objective of this report is to describe a number of resource use options which have been identified for consideration in developing a Resource Management Plan for the Soo Timber Supply Area. The next step in the planning process is to decide which option or combination of options is to be implemented. Written comments and recommendations concerning this matter may be forwarded no later than June 30, 1990 to:

Regional Manager
B. C. Forest Service
4595 Canada Way
Burnaby, BC
V5G 4L9

Attention: G. W. Sutherland, R.P.F.
Planning/Inventory Officer

This report, together with the written comments and recommendations, will provide the basis for the Regional Manager's recommendation of an Allowable Annual Cut (AAC) to the Chief Forester, and will guide the preparation of a Resource Management Plan. This plan will set out the resource management objectives for the next five years, for the timber, range and recreation resources under Forest Service jurisdiction and integrate these with the management objectives of other resource management agencies. The plan will also establish the long term strategies for managing these resources and will identify the programs required to implement these strategies. The approved plan will include the AAC as the first five years of the long term timber supply objective.

This report has been prepared in accordance with Chapter 3 of the Resource Planning Manual. Additional information regarding the development and evaluation of the options presented in this report may be found in the following TSA planning documents which are available from the Regional Manager:

Soo TSA Statement of Issues, Options and Procedures
(August 1986)

Squamish Forest District
Recreation Input to the Soo TSA Plan (March 1987)

Soo TSA Analysis Information Report (February 1988)

Soo TSA Timber Supply Analysis Report (April 1988)

EXECUTIVE SUMMARY.

The current Allowable Annual Cut (AAC) of 705 000 m^3 was determined in 1981 based on existing harvesting commitments in place at the time and an analysis which was carried out during 1979/80.

One of the most significant changes over the last 10 years has been the increased demand for non timber uses of the forest land base. There is a considerable interaction between back-country and developed recreational activity, including aesthetic concerns and the timber harvesting operations in the TSA.

The Status Quo Harvesting Option depicts that a continuation of past performance regarding utilization of the marginally economic stands of this TSA would result in the AAC declining to a long run sustainable yield (LRSY) of 424 000 m^3.

The most optimistic outlook for the forest industry forecasted in this analysis is based on the utilization of the better quality forest stands which have been considered inoperable or only marginally operable in the past; the development of the East Howe Sound area and an enhanced protection and silviculture program. Harvesting of such stands will require increased use of aerial or other less conventional harvesting techniques as well as forest products market conditions which enable such harvesting methods to be economically viable. This would result in a LRSY of 590 000 m^3. The adoption of this combined scenario would conflict with recreation, water and/or wildlife values in several locations in the TSA.

The demand for forest oriented recreation opportunities is extremely high in this TSA due to its proximity to the lower mainland population centers and the focus of the tourist industry on atttracting local and international markets. Based on this information and the importance of the Whistler municipality as a world-class, year-around tourist attraction the forest recreation program requires increased funding and planning efforts in order to provide and maintain the required recreation facilities, landscapes and wilderness areas.

The present recreation program consisting of 16 sites and 16 trails plus 56 000 hectares of primitive, 330 000 hectares of semi-primitive and 184 000 hectares of roaded resource land is estimated to meet only 60 % of this demand.

The long-term outlook for recreation demand is very promising with growth estimates of at least 13 % per year for the next five years. The various recreational opportunities will definitely impact on the forest industry both on the manner in which harvesting takes place as well as the volume removed.

The integration of wildlife habitat into the land base is critical for the overall management direction of the TSA. Past management assumptions would have resulted in a 7 800 hectare decline in critical wildlife habitat. Current management practices as recommended by the Ministry of Environment would maintain approximately 11 000 hectares of critical habitat for deer, moose, spotted owl, fish as well as a variety of other species habitat requirements.

Other Ministries/Agencies were solicited for input in the TSA planning process. Where direct demands were not made on the land base their concerns are to be handled at a lower planning level following integrated resource use principals.

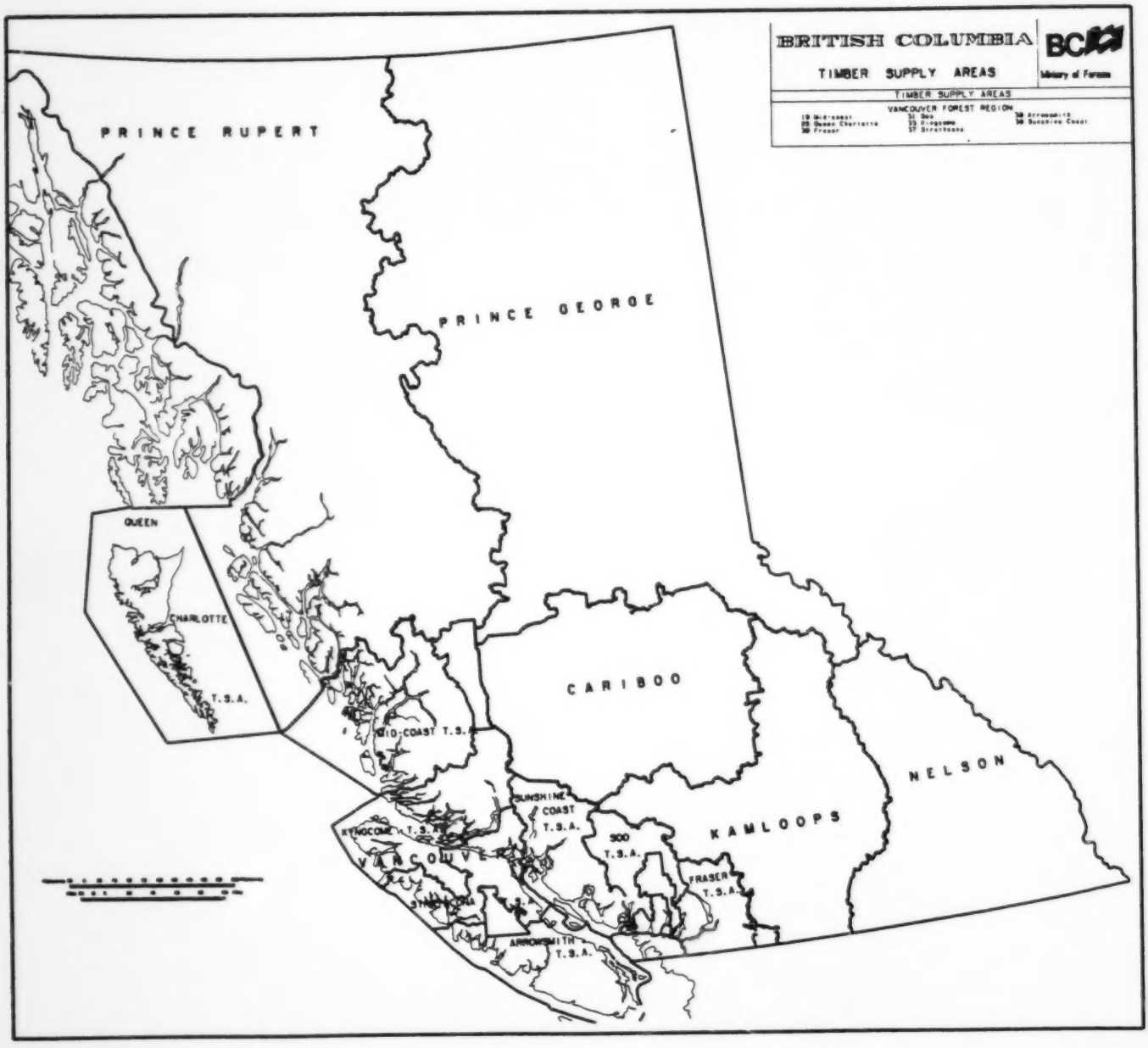
BRITISH COLUMBIA
TIMBER SUPPLY AREAS
Ministry of Forests
TIMBER SUPPLY AREAS
VANCOUVER FOREST REGION
PRINCE RUPERT
PRINCE GEORGE
QUEEN
CHARLOTTE
T.S.A.
MID-COAST T.S.A.
CARIBOO
NELSON
SUNSHINE
COAST
T.S.A.
KAMLOOPS
300
T.S.A.
FRASER
T.S.A.
KINGCOME T.S.A.
VANCOUVER
ARROWSMITH
T.S.A.

Figure 1.

BRITISH COLUMBIA

SOO TIMBER SUPPLY AREA
VANCOUVER FOREST REGION

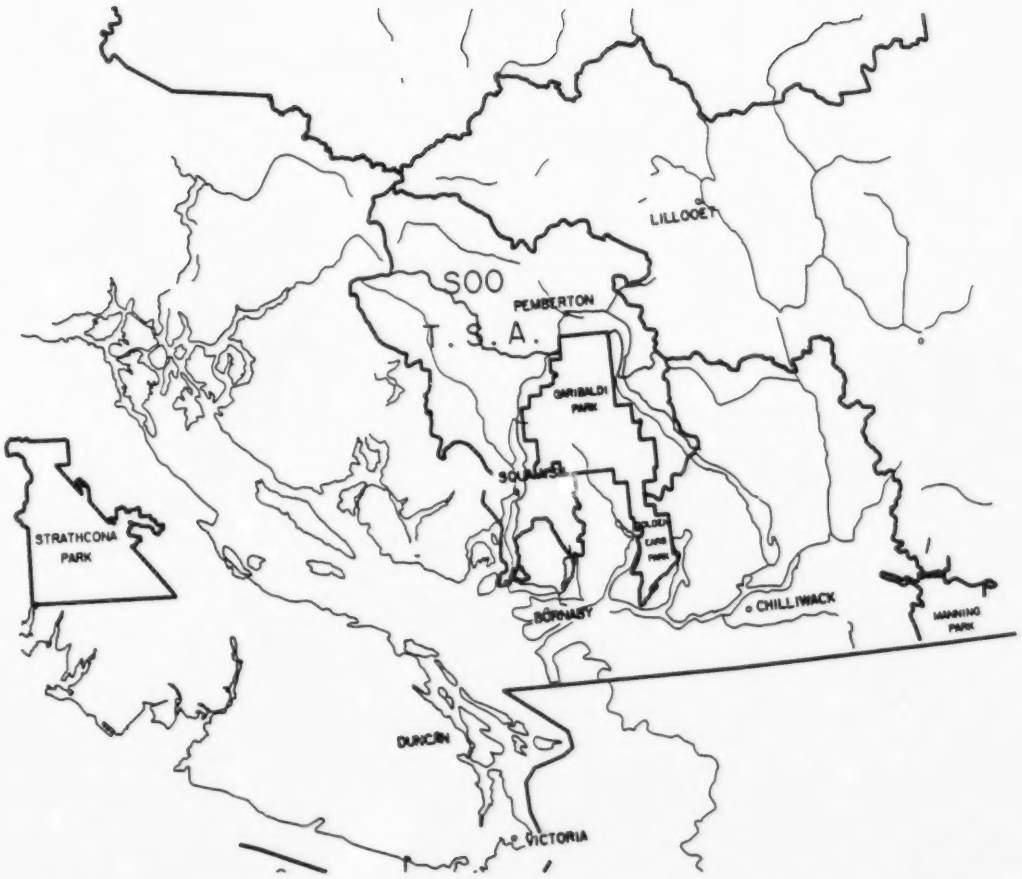

Figure 2.

1.0 DESCRIPTION OF THE TSA

The Soo Timber Supply Area is located north of Vancouver and is one of eight TSAs within the Vancouver Forest Region (Figure 1). It encompasses the lower Squamish, Cheakamus and Lillooet River drainages and the east side of Howe Sound. For purposes of TSA planning, the area has been divided into three Timber Supply Blocks: Squamish, Pemberton and Port Douglas (Figure 2).

The Soo TSA boundary also encompasses the District of Squamish, the Resort Municipality of Whistler, (the TSA surrounds Garibaldi Provincial Park) a number of provincial and regional parks, and scattered parcels of private land which do not come under the jurisdiction of the Ministry of Forests for planning purposes. The TSA is bisected by the B.C. Railway and the Squamish-Pemberton Sea-to-Sky highway corridor which parallel each other and the Duffy Lake highway corridor.

The forest based resource uses which are of primary importance in this TSA are timber production and forest oriented recreation (including landscape values). Being adjacent to the largest population and manufacturing centre of the province, these resources are extremely valuable to their respective users, consequently the demands are high and increasing for these resources. The existence of world-class recreation facilities at Whistler attract tourists from around the world to enjoy the natural outdoor recreation features of this area.

2.0 DESCRIPTION OF THE FOREST RESOURCES

2.1 TIMBER

The total area encompassed by the Soo TSA is 726 313 ha, of which 634 374 ha is Crown land under the jurisdiction of the Ministry of Forests (see table 1). The area of productive Crown forest land within the TSA is 233 694 ha and 63 % of this 233 694 ha is over 121 + years of age and is considered mature.

The predominate tree species in the area are Hemlock and Balsam mixtures, with Douglas-Fir and Cedar type groups forming the next most prevalent species. The 141 + year old Hemlock Balsam type groups in the Soo River drainages are mostly decadent and only under excellent market conditions can this wood be removed economically.

The TSA encompasses Coastal forests in its western portions and the drier Coastal - Interior Transition forests in the eastern part of the TSA.

TIMBER (cont)

Timber harvested from the TSA is manufactured both within and outside the boundaries of the TSA. The current AAC of 705 000 m^3 is apportioned to various tenures as follows:

	Coniferous m^3	%	Deciduous m^3	%
Forest Licences, replaceable....:	523 756	74.3	0	0.0
TSL (major) 10 000 m^3.....:	0	0.0	0	0.0
SBFEP - any Category (sec 16)...:	102 340	14.5	0	0.0
- Category 1 (sec 16).....:	0	0.0	0	0.0
- Category 2 (sec 16).....:	0	0.0	0	0.0
- Bid Proposals (sec 16.1):	30 540	4.3	0	0.0
- TSL (major) =10 000 m^3:	25 864	3.7	0	0.0
Forest Service Reserve.....:	10 500	1.5	0	0.0
Woodlot Licences.....:	7 000	1.0	0	0.0
Temporary Licences.....:	0	0.0	5 000	0.7
Pulpwood Agreement, TSL.....:	0	0.0	0	0.0
Sub Total.....:	700 000	99.3	5 000	0.7
Allowable Annual Cut.....:	705 000	100.0		

Comment:

Temporary AAC of 5 000 m^3 to Scott Paper Limited for a 15 year term expiring on August 19, 2003.

2.2 RANGE

There is minimal Crown range in the Soo TSA; approximately 250 AUMs is the current demand. This TSA ranks low when compared to other TSAs in the province in terms of forage production and demand for additional Crown range land. The demand for Crown range land is not expected to increase significantly in this TSA over the next five years.

2.3 RECREATION

Some of the finest outdoor recreation opportunities in the region are available in the Soo TSA and several have reached international - world-class recognition, including downhill and heli-skiing, rock and mountain climbing and windsurfing.

The Soo TSA has been divided into 4 Recreation Management Units - Squamish South, Whistler, Lakes and Lillooet River.

Current inventories identify the following classes of the Recreation Opportunity Spectrum (ROS) in the Soo TSA.

Recreation Opportunity Spectrum Class		Size (ha)	%
Primitive	(P)	55 964	9
Semi-Primitive-Non-Motorized	(SPNM)	324 461	51
Semi-Primitive-Motorized	(SPM)	5 851	
Roaded Resource Lands	(RRL)	184 182	29
Rural/Urban	(R/U)	63 914	10

Presently on the Crown land portion of the TSA, the following recreation facilities are provided by the Ministry of Forests:

Recreation sites - 16 (156 vehicle units)
Recreation trails - 16 (117 km)

Within each ROS setting, a number of important recreation features have been identified and are available for activities such as camping, hiking, viewing, motor biking, four-wheel drive and all terrain vehicle driving, boating, fishing, skiing and many other recreation activities.

Demand for recreation opportunities is increasing across the entire ROS spectrum. Data obtained from Provincial Parks, Squamish/Whistler Municipalities and MoF user surveys indicate that the average annual increase for recreation is approximately 13 % for this TSA. Estimated use of MoF facilities has varied widely over the past three years but has ranged from 20,000 to 80,000 user days, including dispersed use and developed facilities.

The present access pattern in the TSA and the concentrated areas of activity around Squamish, Whistler, Pemberton and Lions Bay have made the management of scenic values a very high priority along major highway corridors.

2.4 FISH AND WILDLIFE

From both a provincial and a regional context, the fish and wildlife resources of the Soo TSA are very valuable. Outdoor recreational use of the Soo TSA is rapidly increasing as the Lower Mainland population base expands, the road access improves and the public's awareness of our outdoor heritage increases. It is estimated that the area already supports thousands of user-days of recreation, much of which is enhanced by the diverse wildlife fauna.

The Soo TSA annually attracts approximately 3,500 deer hunters and generates 15,000 hunter-days of recreation. In 1987 dollars, resident hunting in the Soo contributed $360,000. (Ref. Averages from 1977 to 1986 data from Region II, F&W)

Fishing activities annually attract thousands of anglers to fish the many lakes and streams of the area. Although no hard dollar figures are available here, it is estimated that the tourist revenue from recreational fishing may approach the one million mark based on a figure of $21 per angler day.

The mature virgin forests of this TSA contain a vast assemblage of wildlife species that are highly dependent on the unique qualities associated with the diverse structure of an old growth forest. In the coastal forests, approximately one hundred and thirty wildlife species use old growth which includes the following groups: 4 species of amphibians, 5 species of reptiles, 93 species of birds, and 28 species of mammals (excluding deer and other big game species). The conservation of distinct tracts of old growth forest is important in order to retain a measure of diversity of flora and fauna in the forests of tomorrow. In recent years the northern spotted owl has become one of the major indicator species for old growth forest wildlife in the Pacific Northwest, including the Soo TSA.

3.0 FOREST RESOURCE MANAGEMENT ISSUES IN THE TSA.

The 1986 Statement of Issues, Options and Procedures set the framework for the analysis that followed. Most of the issues identified at the initial stage of the analysis process have been analyzed to the extent possible given the information and the tools available at the time of analysis. Since the process was initiated and the analysis completed, new issues have arisen and the TSA planning process has expanded to include more than an analysis of future timber supplies. The following list of issues includes those identified in the Statement of Issues, Options and Procedures as well as pertinent issues which have arisen subsequently. While new issues have been identified, it should also be noted that some of the issues originally identified may be irrelevant today because of changed technical, economic and legislative conditions.

RESOURCE MANAGEMENT ISSUES

1. How do actual programs and forest management practices carried out over the period 1981 - 86 compare with the assumptions made in the determination of the AAC in 1981?

2. What is the impact on all resource values of continuing the actual forest management practices and standards which occurred during the period 1979 - 1986?

3. What forestry programs and funding levels are required to maintain the current AAC over the long term (50 years)?

4. What long-term timber supplies can be achieved by implementing the silviculture program as currently outlined in the Soo TSA Plan and the Vancouver Forest Region Silviculture Plan (including assistance from The Federal Provincial Forest Resource Development Agreement (FRDA))?

5. What is the impact on short or long-term timber supplies of reserving critical fish and wildlife habitat from timber harvesting? These areas have been identified as critical habitat for deer, moose and the northern spotted owl as well as riparian zones by the Ministry of Environment and the Department of Fisheries and Oceans.

6. What is the impact on timber supplies in this TSA of higher than average levels of decadence in mature Hemlock-Balsam and Balsam-Hemlock forest stands in this TSA?

7. What long-term volume gains can be realized by treating the forest disease Phellinus weirii (Root Rot)?

8. What is the impact on short and long-term timber supplies of reduced harvest rates to protect high non-timber values in the following drainages: Joffre Creek, Mt. Currie, Sixteen Mile Creek, Mill and Woodfibre Creek, Pemberton Creek, Meager Creek, Wolverine Creek, Sockeye Creek and the forested area adjacent to the Squamish Highway?

9. What is the impact on forest management if access to the following drainages is restricted due to the strategic location of private land: Furry Creek, Britannia Creek, Wedge Creek, Indian River and western side of the Squamish River drainage?

10. What is the impact of not allowing any harvesting along the east side of Howe Sound south of Furry Creek?

11. What is the effect of resource development on landscape values along the major highway routes and adjacent to existing communities within the TSA?

12. What action is required to reduce conflict between motorized and non-motorized recreational users in this TSA?

13. What action is required to resolve conflicts between public and commercial recreation users?

14. What is the impact of resource development on recreation values/experiences?

15. What is the impact on forest management of an expansion of back-country recreation opportunities and facilities?

16. What is the impact on timber supplies of deleting Crown forest land immediately adjacent to the Resort Municipality of Whistler for the purpose of protecting recreation values?

17. What impact on timber supplies can be expected to result from proposals to expand outdoor recreation facilities in the vicinity of the Resort Municipality of Whistler?

18. What is the impact on timber supplies of reserving areas of old growth forest from timber harvesting?

19. What is the impact of forest land alienations for single use purposes on the forest resource values of the TSA?

20. What is the impact on the forest land base of land losses due to the construction of roads and landings as part of harvesting operations?

4.0 DESCRIPTION AND ANALYSIS OF THE OPTIONS.

4.1 AAC RATIONALE OPTION

This option forecasts future timber supplies based on the forest management assumptions made when the existing AAC was established in 1981. These are the assumptions made regarding accessibility, silviculture program levels, losses to fire, insects and disease etc., which are listed below. This option is presented to facilitate a comparison of historical management performance (Status Quo) to the planning assumptions upon which the current AAC is based (AAC Rationale).

1. The productive forest land base was netted down for operability considerations by the exclusion of broad forest stand types and productivity classes. Assessment of operability based on stand quality, location, and terrain was not carried out due to a lack of quantifiable information.

2. Fish and Wildlife habitat and recreation program requirements were based on Environmentally Sensitive Area mapping.

3. Basic silviculture was assumed on all harvested areas.

4. Allowances were made for unsalvaged losses due to fire and blowdown and losses volume due to road and landing construction.

5. Timber Licence reversions to the net productive land base of the TSA were not considered in the analysis.

Summary

Net Land Base (ha)	170 313
Allowable Annual Cut (m3)	705 000
Long Run Sustainable Yield (m3/yr)	503 000
LRSY minus Current AAC (m3/yr)	-202 000
Current Total Inventory (m3)	66 080 000

4.2 STATUS QUO OPTION

This option will forecast future supplies of timber and forest oriented recreation based on program levels and management practices which have actually occurred since the current AAC was approved in 1979.

Assumptions:

1. Past trends in the feasibility of harvesting forest stands within the TSA will continue. These past trends reflect constraints on the availability of forest stands for harvesting due to economic, technical and environmental considerations. The utilization of the forest profile which has occurred since the AAC was determined has proven to be considerably less than what was assumed in determining the AAC.

2. Basic silviculture is being achieved.

3. Range and Recreation programs will be continued at historic levels. See description of Resources-Recreation for present program.

4. No provisions other than the 1981 ESA allowances will be used to account for the protection of fish and wildlife habitat.

5. Historical unsalvaged volume losses due to fire, insects, diseases and blowdown will continue.

6. No allowance is made for significant withdrawals to the forest land base for single use purposes.

7. The volume of timber contained within the remaining mature stands of Hemlock-Balsam and Balsam-Hemlock is not as high as predicted due to unforeseen high levels of rot.

8. Future Timber Licence reversions to the forest land base are included in this option.

9. The forested slopes on the east side of Howe Sound extending south from Furry Creek to Horseshoe Bay have been deleted from the land base in the option because of environmental sensitivity (visibility, debris flow prevention, water quality preservation) and the existence of populated areas and vital transportation corridors on the lower slopes.

Summary and Comparison with AAC Rationale Option

Net Land Base (ha)	148 561	-12.8
Current AAC (m3)	705 000	
Long Run Sustainable Yield (m3/yr)	424 000	-15.7%
LRSY minus Current AAC (m3/yr)	-281 000	
Current Total Inventory (m3)	38 110 000	-42.3
Change in Recreation Opportunity Spectrum class distribution	4% reduction in Primitive (P), Semi-Primitive Non-Motorized Area (SPNM)	

Implications

1. The current AAC of 705 000 m3 begins to decline to the Long Run Sustainable Yield (LRSY) of 424 000 m3 after ten years. This decline in the rate of harvest will have a negative impact on industries directly and indirectly dependent on timber extracted or manufactured from within this TSA.

2. This option does not provide the critical habitat protection requirements for deer, moose, spotted owl and fish as recently identified by the Ministry of Environment.

3. The supply of recreation opportunities (ROS) will not be adversely affected by timber harvesting as there is only a projected decrease of 4 % in Primitive and Semi-Primitive areas over the next 20 years. The area of roaded resource land within the TSA will have a corresponding increase.

   However, the majority of P/SP areas are concentrated in the alpine/sub-alpine and there are limited opportunities to enjoy a "wilderness - type" experience in timbered valley bottoms outside of Provincial Parks. As a result timber harvesting may have a significant impact on recreation experiences in the Roaded Resource Land ROS class over the next 20 years as the remaining timber is removed from these drainages.

4. Commercial recreation demands will have to be met primarily on Provincial Forest Lands due to Ministry of Parks' policy of allowing primarily public recreation within Garibaldi Park. This in turn, will impact on public recreation opportunities in the TSA as conflicts will continue to arise and intensify between commercial and public recreation interests. Conflicts between motorized and non-motorized recreation interests will continue to arise.

5. Projected increases in public recreation demand will necessitate additional recreation facilities in order to meet some of the anticipated shortfall. Existing facilities currently experience overcrowding during peak periods and environmental degradation is occurring at some sites.

6. Scenic values will be impacted where harvesting occurs along travel corridors, adjacent to communities and other sensitive areas except where restrictive Visual Quality Objectives have been established and a landscape analysis has been carried out. Visual quality will diminish in some areas of high sensitivity with an adverse impact on scenic values expected in the short term.

   Negative impacts on scenic values may be lessened, to some extent, by utilizing landscape management techniques, more innovative harvesting techniques and prompt reforestation on highly visible slopes.

4.3 TIMBER PRODUCTION EMPHASIS OPTION

This option has been divided into a number of scenarios which examine different forest land bases and forest management programs aimed at enhancing the current and future timber supplies. Although these scenarios are presented separately, combinations of the scenarios may be considered in developing a Resource Management Plan for this TSA.

4.31 IMPROVED ACCESS SCENARIO

Assumptions

1. The better quality forests stands (those greater than 121 + years old and over 28.5 meters in height) which were considered inoperable in the Status Quo Option are included in the net land base of this option.

2. All other assumptions remain the same as outlined in the Status Quo Option.

Summary and Comparison with Status Quo Option

Net Land Base (ha)	191 290	+28.8%
Current AAC (m3)	705 000	
Long Run Sustainable Yield (m3/yr)	517 000	+21.9%
LRSY minus Current AAC (m3/yr)	-188 000	
Current Total Inventory (m^3)	58 550 000	+53.6%
Change in ROS class distribution	Less P, SPNM than in Status Quo	

Implications

1. This scenario clearly illustrates the significant impact of operability on timber supply in this TSA. Comparison of this scenario with the Status Quo indicates that the current AAC can be maintained for an additional forty years and the overall productive capacity of the TSA can be increased by 93 000 m3/yr if stands currently inoperable are able to be developed.

2. The reduction in areas of the Primitive and Semi Primitive Non Motorized Recreation Opportunity Spectrum classes can be expected to increase due to the location of the additional forest stands included in this scenario.

3. This scenario can also be expected to increase the amount of modification to the forest landscape due to the same factors referred to in (2) above.

4. Reductions in the area of critical wildlife habitat may occur, although the impact cannot be determined until each forest stand involved is examined site specifically.

4.32 HOWE SOUND SCENARIO

Assumptions

1. The two forest inventory compartments on the east side of Howe Sound extending south from Furry Creek to Horseshoe Bay are included in the forest land base designated for timber production in this scenario. This area was excluded from the Status Quo Option.

2. All other assumptions are as per the Status Quo Option.

Summary and Comparison with the Status Quo Option

Net Land Base (ha)	149 740	+0.8
Current AAC (m3/yr)	705 000	
Long Run Sustainable Yield (m3/yr)	428 000	+0.9%
LRSY minus Current AAC (m3/yr)	-272 000	
Current Total Inventory (m^3)	38 560 000	+1.2%
Change in ROS class distribution	Potential for slight decrease in P, SPNM area	

Implications

1. Including this area in the net land base for timber production will have little short term impact on timber supply. In the long term, inclusion of this area will increase the long run sustainable yield of the TSA by 4000 m3/yr.

2. Including this area in the net land base may have an impact on the ROS class distribution of the TSA due to access development and timber harvesting.

3. Harvesting within this area will modify the landscapes adjacent to Howe Sound.

4.33 INCREMENTAL SILVICULTURE SCENARIO

Assumptions

1. This scenario assumes that basic and a specified level of incremental silviculture will be achieved. The incremental silviculture activities prescribed are; backlog reforestation, juvenile spacing, fertilization and conversion of some alder stands to Douglas-Fir on suitable sites. The funding level used in this scenario is $734,000/yr.

2. All other assumptions in this scenario are as per the Status Quo Option.

Summary

Net Land Base (ha)	148 531	
Current AAC (m3/yr)	705 000	
Long Run Sustainable Yield (m3/yr)	471 000	+11.1%
LRSY minus Current AAC (m3/yr)	-234 000	
Current Total Inventory	38 110 000	
Change in ROS class distribution	Same as Status Quo	

Implications

1. A comparison of this scenario with the Status Quo Option indicates that the long run sustainable yield of the TSA can be increased by 47 000 m3/yr.

2. The gains indicated in this option are volume gains only. The increase in wood quality and value, as well as the decrease in the time required to produce a merchantable stand through juvenile spacing and fertilization have not been analyzed. Such an analysis is required to determine the true value of such activities. For further discussion of value gains due to incremental silviculture, see Appendix III.

3. The long-term timber supply for the forest industry will be improved by implementing this scenario.

4.34 PROTECTION SCENARIO

1. This scenario examines the impact on timber supplies of implementing a forest protection program designed to reduce volume losses due to Phellinus weirii (root rot) in pure stands of second-growth Douglas-Fir on good and medium growing sites. Treatment for this disease consists of mechanical stump removal or a species conversion program using species tolerant or less susceptible to Phellinus weirii having productivity similar to Douglas-Fir.

2. All other assumptions in this scenario are as per the Status Quo Option.

Summary and Comparison with Status Quo Option

Net Land Base (ha)	148 561	
Current AAC (m3/yr)	705 000	
Long Run Sustainable Yield (m3/yr)	431 000	+1.7%
LRSY minus Current AAC (m^3/yr)	-274 000	
Current Inventory Volume (m^3)	38 110 000	
Change in ROS class distribution	Same as Status Quo	

Implications

Modelling the impact of Phellinus weirii (root rot) is difficult because of the progressive nature of the disease over time and the lack of growth functions which reflect this disease. Treatment of this disease will increase the long run sustainable yield by 7 000 m3/yr, which will improve the long-term timber supply outlook in this TSA.

4.4 DECADENT FOREST STANDS OPTION

In this option, all Hemlock-Balsam and Balsam-Hemlock stands greater than 140 + years of age are excluded from the net operable land base. This exclusion has been made because the high levels of decadence found in most of these stands makes them uneconomic to harvest at this time.

All other options are the same as the Status Quo Option.

Summary and Comparison with the Status Quo Option

Net land base (ha)	133 713	-10 %
Current AAC (m^3/year)	705 000	
Long Run Sustainable Yield (m^3/year)	402 000	-5.2%
LRSY - Current 8 AAC (m^3/year)	-303 000	
Current Total Inventory Volume (m^3)	30 420 000	-20.2%
Change in ROS Class Distribution	Less disruption to P, SPNM areas	

Implications

1. In this option, the current volume of mature timber available to the forest industry is reduced by 21 %. This reduction in volume of available mature timber results in the harvest forecasts declining, after 10 years, from the current level of 705 000 m^3/year to a rate of 251 000 m^3/year after 50 years, before climbing the long run sustainable yield of the TSA of 402 000 m^3/year. The reduction in long run sustainable yield relative to the Status Quo is due to a 10 % reduction in the net operable land base.

2. The 10 % reduction (15 000 ha) in the net operable land base will lessen the impact of forest development on the primitive and semi-primitive non-motorized recreation opportunity spectrum classes, and will reduce the area available for potential landscape modification by forest resource development.

3. The additional area mature timber deleted from the net operable land base will provide additional areas of old growth timber for the protection of forest flora and fauna dependent upon old growth forests for their survival.

4.5 REDUCED ALLOWABLE ANNUAL CUT OPTION

In this option, the allowable annual cut has been reduced to 424 000 m^3.

All other assumptions are the same as the Status Quo Option.

Summary and Comparison with the Status Quo Option

Net land base (ha)	148 561	
Allowable Annual Cut (AAC) (m^3)	424 000	-39.8%
Long Run Sustainable Yield (LRSY)(m^3/year)	424 000	
LRSY Minus AAC (m^3/year)	0	
Total Current Inventory (m^3)	38 110 000	
Change in ROS class distribution	Same as Status Quo	

Implications

1. This option will have a negative short-term impact on the economic and social benefits derived from the forest products industry within the TSA due to a 40 percent reduction in the Allowable Annual Cut of the TSA. The reduced Allowable Annual Cut of 424 000 cubic metres, however, can be maintained indefinitely because it is based on the long-run sustained yield capacity of the TSA.

   The negative impacts of this reduced rate of harvest may be offset to some extent by a more stable supply of raw material to the forest industry in the long-term and a more stable economic outlook for the communities within The TSA which rely on the economic well-being of the forest industry.

2. This option will have a favourable impact on certain types of forest-oriented recreation activity which occurs in the primitive and semi-primitive non-motorized class areas of the Recreation Opportunity Spectrum (the wilderness and semi-wilderness areas).

3. This option will benefit the management of critical fisheries and wildlife habitats as the lower AAC will provide more flexibility in the forest management planning process involving these areas.

4.6 RECREATION EMPHASIS OPTION

4.61 MINIMUM ACCEPTABLE PERFORMANCE SCENARIO

This scenario examines the impact of meeting minimum acceptable performance standards for the Recreation program including operational requirements, assigning Visual Quality Objectives (VQOs) for sensitive landscapes and identifying potential wilderness areas. Under this option, recreation resource management and recreation use management will be brought up to minimum acceptable performance standards, which includes meeting the existing demand for recreation site and trail development and bringing all existing sites and trails up to a minimum acceptable standard. The full range of Visual Quality Objectives (VQOs) will be applied in visually sensitive areas and wilderness areas will be identified and planned in areas where there will be no impact on timber harvesting or road development.

This scenario assumes a funding level for the Recreation Program of $150,000/yr.

All other assumptions are as per the Status Quo Option.

Summary and Comparison with the Status Quo Option

Net Land Base (ha)	148 561
Current AAC (m3/yr)	705 000
Long Run Sustainable Yield (m3/yr)	424 000
LRSY minus Current AAC (m3/yr)	-281 000
Total Current Inventory (m3)	38 110 000
Change in ROS class distribution	Same as Status Quo

Implications

1. This scenario has minimal impact on the timber supply forecast over the long term as a result of landscape management activities within visually sensitive areas. There may be some short-term impact on timber supply due to the short-term deferral of proposed harvest plans in these high and medium sensitive areas.

2. Visual quality will be retained in sensitive landscapes and public expectations of visual quality will be partially met throughout the TSA. Some impact on landscape values can be expected in non-sensitive areas and visual quality will diminish, however prompt reforestation after timber harvesting will gradually lessen the initial adverse impact. With increased funding, resource and use management will be brought up to an acceptable level of performance and existing demand for site and trail development and maintenance will be met. Some high value wilderness areas will be protected but generally public demand for wilderness opportunities will not be completely met.

4.62 ENHANCED RECREATION/LANDSCAPE SCENARIO

This scenario examines the impact of anticipating the future demand of enhanced resource and use management including increased site/trail development, maintenance and rehabilitation; the identification, planning and designation of wilderness areas throughout the TSA and applying the full range of Visual Quality Objectives throughout the area.

This scenario assumes a Recreation program funding level of $350,000/yr.

All other assumptions are as per the Status Quo Option.

Summary and Comparison with Status Quo Option

Net Land Base (ha)	148 561
Current AAC (m3/yr)	705 000
Long Run Sustainable Yield (m3/yr)	424 000
LRSY minus Current AAC (m3/yr)	-281 000
Current Total Volume (m3)	38 110 000
Change in ROS class distribution	Same as Status Quo

Implications

1. This option has a minimal impact on the timber harvest forecast over the long term as a result of landscape and wilderness management within all areas of the TSA. There will be some short-term impact on timber supply due to the deferral or rescheduling of proposed harvest plans within these areas. There is no anticipated impact on the AAC from an increased level of use management.

2. Visual quality will be retained or enhanced in all areas and public expectations of visual quality will be met.

3. High value wilderness areas will be protected and public demand for wilderness opportunities will be met.

4. Increased funding for the recreation program will be required to meet future demands on use management.

5. There will be no change in roadless areas (from the projected 4% reduction in Status Quo Option) in this scenario.

4.63 WHISTLER SPECIAL MANAGEMENT AREA SCENARIO.

This scenario examines the impact of removing the area immediately adjacent to the Resort Municipality of Whistler from the Soo TSA. This removal would ensure complete protection of landscape values in this area.

All other assumptions are as per the Status Quo Option.

Summary and Comparison with Status Quo Option

Net Land Base (ha)	144 396	-2.8%
Current AAC (m3/yr)	705 000	
Long Run Sustainable Yield (m3/yr)	413 000	-2.5%
LRSY minus Current AAC (m3/yr)	-292 000	
Current Total Inventory (m3)	36 550 000	-4.1%
Change in ROS class distribution	Same as Status Quo	

Implications

1. Removal of this area from the TSA will have an impact on timber production. The long run sustainable yield of the TSA would decline by 2.5 %. This analysis has not considered the presence of private timber on Crown land (Timber Licences) within the area, for which compensation would be due should harvesting rights be extinguished.

2. Removal of this area from the TSA would lessen the impact of resource development on visual resource values in the immediate area.

4.7 FISH AND WILDLIFE HABITAT EMPHASIS OPTION

This option examines the impact of fish and wildlife critical habitat requirements on short and long term timber supplies. Habitat requirements for fish and wildlife species managed by the Ministry of Environment were revised by that Ministry and considered in the initial stage of this analysis. Ministry of Environment reassessment of habitat requirements resulted in an increase in the area required compared to habitat requirement allowances made when the current AAC was determined in 1981.

Assumptions

1. The emphasis in deer winter range habitat management has been placed on reserving those areas that are important for present and future deer population maintenance. These reserved areas will also serve as a means of providing a balance of seral vegetation stages in the future when adjacent mature stands are harvested. This will also benefit deer as well as other successional wildlife such as grouse and black bear populations. The area reserved as critical deer habitat in this option is 10 674 ha.

2. In areas populated by deer, it is assumed that almost all south-facing Douglas-Fir forest cover types which are greater than 100 years old are used as deer winter ranges, where deer would be able to survive a harsh winter.

3. It is assumed that these reserved areas may be harvested if and when adjacent forest stands of the same type mature to a similar condition, at which time the reserved area would be logged and the adjacent area would be reserved. Because of the very long term nature of the deferrals from harvesting which this management strategy implies, and because habitat protection areas will continuously be unavailable for harvesting, the impact of these areas on timber supply has been modelled by deleting them from the timber production land base in this scenario.

4. Sixty seven (67) ha of moose winter habitat have been identified and have been reserved in this scenario.

5. Three hundred and sixty-six (366) ha of old growth timber which contains the northern spotted owl nesting sites have been reserved in this scenario.

6. Forest stands which are required for the protection of valuable fish habitat have been reserved in this scenario. The area involved is 356 ha.

Summary and Comparison with the Status Quo

Net Land Base (ha)	139 392	-6.2%
Current AAC (m3/yr)	705 000	
Long Run Sustainable Yield (m3/yr)	397 000	-6.4
LRSY minus Current AAC (m3/yr)	-308 000	
Current Total Inventory	34 360 000	-9.8
Change in ROS class distribution	Less disruption to P, SPNM areas	

Implications

1. The long run sustainable yield of the TSA will be reduced by 27 000 m3/yr. The deer winter range constraints will have a significant impact on the availability of mature Douglas-fir for harvesting which will have a negative impact on the forest industry. This negative impact may be lessened if the vegetation characteristics present in mature fir stands can be produced in younger forest stands through silviculture practices. This would allow immature forest stands to replace old growth stands as deer winter range. Presently the Integrated Wildlife, Intensive Forestry Research Program (IWIFR) on the south coast is field testing this deer winter range creation hypothesis.

2. This scenario will not increase the area in the Primitive and Semi-Primitive Non-Motorized ROS classes because of the location and scattered nature of the stands being reserved.

3. This scenario will reduce slightly the impact on landscape values which would occur in the Status Quo Option.

5.0 SUMMARY AND COMPARISON OF OPTIONS

The information presented in this section is a brief summary of the analysis carried out, and as such forecasts only general trends in forest management in this TSA. This is not a detailed evaluation of the forest management potential or the social and economic implications of the forest management options available in the TSA.

The analysis shows that the current AAC of approximately 700 000 m^3 cannot be maintained. The Status Quo Option indicates that the AAC begins to decline almost immediately to a long run sustainable yield level of 424 000 m^3/yr. for this land base. The reduction in the timber supply forecast compared to the previous analysis (AAC Rationale Option) is due primarily to a reassessment of the current economically recoverable wood supply in the TSA. This reassessment has resulted in a 21 000 hectare decrease in the area of mature wood available for harvest in this TSA compared with the 1981 land base upon which the present AAC is based.

There is minimal Crown range in this TSA; approximately 250 Animal Unit Months is the current demand. This TSA ranks low when compared to other TSAs in the province in terms of forage production and demand for additional Crown range land. The demand for Crown range land is not expected to increase significantly in this TSA over the next five years.

A review of the forest recreation program shows that the present program is not able to meet the current or projected demand for forest recreational use within the TSAs nor is it able to meet all recreation planning obligations. An enhanced recreation and landscape program will provide adequate resources to meet all program requirements necessary to integrate the recreation program with timber harvesting and other activities.

The most optimistic timber supply forecast in the analysis is the 'Improved Access Scenario' of the Timber Production Emphasis Option and is due to an increased area (21 000 ha) of mature wood available for harvest in the short term. This additional supply of wood is located in the better-quality stands considered inaccessible in the Status Quo Option. The increased area referred to above increases the long run sustainable yield of the TSA by 93 000 m^3/yr. above the status quo level. The higher level of long run sustainable yield and increased area and volume of mature timber available for harvest result in the current AAC being maintained for an additional 40 years before declining to the long run sustainable yield level of 517 000 m^3/yr. The acceptance of this scenario implies an immediate increase in forest harvesting development in these uneconomic stands by non-conventional or other harvesting methods. To date, no harvesting has occurred in these stands.

The inclusion of the Howe Sound portion of the TSA in the AAC is analyzed in the 'Howe Sound Scenario' of the Timber Production Emphasis Option and has minimal impact on the short and long-term harvest forecasts of the TSA. This is because of the relatively small area involved, less than 1 000 hectares contributing approximately 4 000 m^3/yr. to the long run sustainable yield of the TSA. Although the impact of deleting this area from the AAC of the TSA may appear small, the cumulative effect of numerous small deletions on long-term timber supplies must be considered, as well as short-term operational difficulties which may be created.

An analysis of incremental silvicultural activities on future timber supplies was carried out in the 'Incremental Silviculture Scenario' and indicates that the long run sustainable yield of the TSA can be increased by 47 000 m^3/yr. These activities are comprised of planting backlog NSR areas, juvenile spacing and fertilization. The incremental silviculture gains indicated in this analysis are volume gains only. Important considerations such as improved wood quality and reduced harvest ages realized from incremental silviculture have not been analyzed but are discussed briefly in Appendix II.

Root rot (Phellinus weirii) is a common disease afflicting second growth Douglas-fir stands in this TSA and was analyzed in the 'Protection Scenario'. The analysis indicates that forestry programs aimed at eliminating the spread of this disease could provide increases in the long run sustainable yield of the TSA of up to 7 000 m^3/yr. This estimate of potential volume gains is considered conservative by forest pathologists as the biology of the disease is well understood but the rate at which the disease will spread through forest stands if untreated is not well reflected in current growth rates.

The presence of higher than average levels of decadence in the remaining accessible hemlock and balsam forest stands of this TSA was modelled in the 'Decadent Forest Stands Option' in order to determine its impact on short and long-term timber supplies. Removing these areas would reduce the area of mature timber indicated in the Status Quo Option by an additional 15 000 hectares. This reduction in available area and volume of mature timber creates severe short to mid-term timber supply shortages in the TSA. Only 251 000 m^3/yr. of timber would be available for harvest in 50 years, although the long-term impacts would be less severe (402 000 m^3/yr. available for harvest in 100 years).

The option of reducing the AAC from its current level of 700 000 m^3 to a rate of 424 000 m^3 is presented in the 'Reduced AAC Option'. Although the land base is the same as in the Status Quo Option, the harvest forecast is significantly different. The harvest rate of 424 000 m^3 can be maintained indefinitely because it is equal to the long run sustainable yield of the land base on which it is based. Although the immediate impact on the forest industry would be negative, it may be offset to some extent by a more stable long-term timber supply and increased flexibility in incorporating non-timber values into forest harvesting development plans.

The impact of placing an increased management emphasis on the maintenance of critical wildlife and fisheries habitat areas was also examined in the Fish and Wildlife Emphasis Option. Forested areas amounting to approximately 9 100 hectares were deleted from the forest land base for habitat protection purposes. The reduction in the area and volume of mature timber has a significant impact on forecasted timber harvests, although the long-term effects are less pronounced. The timber supply forecasts drop faster and to a lower level than in the Status Quo Option, finally reaching the long run sustainable yield of 402 000 m^3/yr.

The 'Whistler Special Management Area Scenario' of the Recreation Emphasis Option was analyzed to examine the impact of deleting an area of land adjacent to the Resort Municipality of Whistler. This would result in a 4 100 hectare reduction in the net productive area of the Soo TSA and a 11 000 m^3/yr. reduction in long run sustainable yield compared to the Status Quo Option.

The key statistics concerning each option and scenario carried out in this analysis are presented in Appendix I.

APPENDIX I

SOO TSA OPTIONS REPORT - COMPARISON OF OPTIONS AND SCENARIOS

Resource Capacity	Revised AAC Rationale Option	Status Quo	Improved Access	Howe Sound	Decadent Stands	Reduced AAC	Incre-mental Silvi-culture	Protection	Fish and Wildlife	Whistler Special Man. Area	Enhanced Recreation
Gross Crown Forest Land (ha)	634 374	634 374	634 374	634 374	634 374	634 374	634 374	634 374	634 374	634 374	634 374
Timber Resource											
Net Operable Timber Land Base (ha)	170 313	148 561	191 290	149 740	133 713	148 561	148 561	148 561	139 392	144 396	148 561
AAC	700 000	700 000	700 000	700 000	700 000	424 000	700 000	700 000	700 000	700 000	700 000
Long Run Sustainable Yield (m^3)/ha)	503 000	424 000	517 000	428 000	402 000	424 000	471 000	431 000	397 000	413 000	424 000
Change in LRSY compared to Status Quo	+79 000	-	+93 000	+4 000	-22 000	-	+47 000	+7 000	-27 000	-11 000	-
Recreation Resources											
Primitive Area (ha)		56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000
Semi-Primitive Area (ha)		330 000	300 000*	330 000	330 000	330 000	330 000	330 000	330 000	330 000	330 000
Roaded Resource Lands (ha)		184 000	214 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000
Recreation Sites (Vehicle Units)		156	156	156	156	156	156	156	156	156	312
Recreation Trails (km)		117	117	117	117	117	117	117	117	117	234
Wildlife Resources											
Critical Wildlife Habitat reserved from harvest (ha)	1 900	2 900	2 900	2 900	2 900	2 900	2 900	2 900	12 100	2 900	2 900
Wildlife Populations **	Decline	Decline	Decline	Decline	Decline	Less Decline	Decline	Decline	Maintained or Enhanced	Decline	Decline

* Assumes 10 % decline in semi-primitive area, becoming roaded.

** Wildlife population or habitat capacity figures were not available at the time of this comparison.

APPENDIX II

RECREATION OPPORTUNITY SPECTRUM DELINEATION CRITERIA

	REMOTENESS CRITERIA	SIZE CRITERIA	EVIDENCE OF HUMAN CRITERIA
PRIMITIVE	≥ 8 km from primitive roads	≥ 5 000 ha	Setting is essentially an unmodified environment. Evidence of humans would be unnoticed by an observer wandering through the area. Evidence of trails is acceptable, but should not exceed standard to carry expected use.
SEMI-PRIMITIVE NON-MOTORIZED	≥ 1 km from primitive roads	≥ 1 000 ha	Natural setting may have subtle modifications that would be noticed but not draw the attention of an observer wandering through the area. Area has not been logged or subject to industrial activity or it has been rehabilitated (second growth) to a point that it is no longer readily recognizable as an industrial/logged area. Structures are rare and isolated.
SEMI-PRIMITIVE MOTORIZED	≥ 1 km from better than primitive roads	≥ 1 000 ha	Natural setting may have moderately dominant alterations but would not draw the attention of motorized observers on trails, waterways, and primitive roads within the area. (ie. industrial or agricultural activity must not be noticeable to the motorized recreational user). Structures are rare and isolated.
ROADED RESOURCE	Within 1 km of better than primitive roads	No size criteria	Natural setting may have modifications which range from being easily noticed to strongly dominant. Resource utilization and modification practices may be evident. However, from sensitive travel routes these alterations would remain unnoticed or visually subordinate. There is strong evidence of designed roads, highways and/or railroads. Structures are generally few and scattered, remaining visually subordinate or unnoticed to the traveller on a sensitive travel route.
RURAL	No remoteness criteria	No size criteria	Natural setting is culturally modified to the point that it is dominant to the observer on a sensitive travel route. May include pastoral, agricultural, intensively managed resource extraction or utility corridors. Pedestrian or other slow moving observers are almost constantly in view of culturally changed landscapes. There is strong evidence of designed roads, highways and/or railroads. Structures are readily apparent and may range from scattered to small dominant clusters.
URBAN	No remoteness criteria	No size criteria	Setting is strongly structure dominated. Natural or natural-appearing elements may play an important role but be visually subordinate. Pedestrians and other slow moving observers are constantly in view of artificial enclosure spaces. There is strong evidence of designed roads, highways, streets, and/or railroads. Structures and structure complexes are dominant.

APPENDIX III

A 1984 report prepared by Nawitka Resource Consultants modelled the economic return of silviculture investments in the Vancouver Forest Region. The report demonstrated the following relative values for incremental silviculture treatments in the Fraser TSA, assumed to have similar economic potential to the Soo TSA.

Stand Type	Treatments	Net Present Value per ha in $		
		Poor Site	Medium Site	Good Site
Plantations	Juvenile Spacing,	1,100	3,200	5,500
	Fertilization or	1,900	4,600	7,000
	Juvenile Spacing and Fertilization			
Natural Regeneration	Juvenile Spacing or	500	1,300	1,200
	Juvenile Spacing and Fertilization	1,000	2,100	1,800

The net present values indicated combine the impact of incremental silviculture treatments on log values, which reflect size and quality, and on harvesting costs which vary with average log size. The lowest net present value in each range is usually associated with the poorest logging chance which is related mainly to the longest haul distance.

Treatments which yield a positive net present value will generate a positive return based on a 4 % real cost of capital.

APPENDIX IV

GLOSSARY

1.

1. Allowable annual cut (AAC). The maximum permissible rate of timber harvest for a specified area of land, in this case, the TSA.

2. AAC apportionment. The allocation by the Minister of the AAC for a TSA among timber tenures in accordance with Section 8 of the Forest Act.

3. Animal Unit Month (AUM). The amount of forage required to sustain one 455 kg cow and unweaned calf for one month.

4. Basic silviculture. Maintenance of the productivity of forest sites, restocking of denuded forest lands with commercial tree species within 3 years for areas west of the Coast Range and 5 years for areas in the Interior, and including protection against damage by fire, insects and diseases to predetermined standards.

5. Current mature inventory. That portion of the existing total mature forest inventory which is available for harvest. This portion reflects all management constraints that are necessary to protect the environment and other forest uses and varies with the constraints identified for each option.

6. Integrated resource management. Resource management practices which are predicated on the principle of integrating resource uses in order to achieve the optimum social and economic benefit to all resource users. A legislated requirement of the MoF as set out in Section 4 c of the Ministry of Forests Act.

7. Incremental silvicultural practice. Any silvicultural practice, or level of silvicultural practice, which in conjunction with basic silvicultural practices, constitutes an investment in securing future wood yields over and above those possible under basic silvicultural regimes.

8. Long run sustainable yield (LRSY). A measure of land base productivity for specified management assumptions. LRSY is a function of the size and productivity of the land base, the current growing stock, the length of the planning horizon and management assumptions (for example, unsalvaged losses, regeneration delays, managed stand yield tables, extended minimum cutting ages, etc.) and how they are analyzed or modelled.

9. Management issue. A known or anticipated problem or perceived opportunity which surrounds the management of timber, range, recreation and other resource values.

10. Net Land Base. The portion of a land base which is considered to contribute to, and be available for, long-term timber supply. The Net Land Base is defined for an option by reducing (or "netting down") the total (or "gross") land base in a manner consistent with the management assumptions for that option.

APPENDIX IV

GLOSSARY

2.

11. Option. A set of assumptions representing a possible management direction. Options are constructed as a normal part of a planning process in order to provide a framework for analysis and facilitate management decision-making. The term option can be used in the context of a management option, a planning option or an analysis option depending upon the nature of the assumptions defining the option. The analysis of an option may take the form of a number of different model scenarios or "runs", each representing minor changes within a broad set of assumptions.

12. Planning. A support to (forest) management which synthesizes date, coordinates decision-making, evaluates alternatives and translates policies into plans. Discussed in the Forest Planning Framework (Resource Planning Manual, Chapter 1).

13. Quality (of timber harvested). Characteristics of the timber resource, including the timber itself and circumstances surrounding its extraction, which differentiate desirability of profitability. Because of the general lack of economic parameters in the forest industry, quality of timber harvested is usually estimated or inferred through physical stand or site characteristics.

14. Recreation experience. Any personal recreational use of or in the forest and wildland environment which provides satisfaction or enjoyment. The experience may be active or passive, consumptive or non-consumptive. It may occur in primitive, semi-primitive or roaded resource lands, as defined by the Recreation Opportunity Spectrum system, or it may be facilities oriented. See Recreation Opportunity Spectrum.

15. Recreation opportunity. The opportunity for recreation experience. This includes features of interest such as mountains, rivers, lakes, trails, sites, flora, fauna, scenery and other elements of the forest or wildlife environment.

16. Recreation Opportunity Spectrum.. A continuum of combinations or mixes of recreation experiences. Also, the following continuum or "spectrum" as used by the U.S. Forest Service: Primitive/Semi-primitive Non-roaded/Semi-primitive roaded/Roaded natural/Rural/Urban. (See Appendix)

17. Resource Development Planning (RDP). The logistics for resource use development. One of five planning levels in the Forest Planning Framework (Resource Planning Manual, Chapter 1). Includes, for example, Forest Licence Management and Working Plans, Five Year Timber Development Plans, Logging Plans, and Range Unit Plans.

APPENDIX IV

GLOSSARY

3.

18. Resource Management Plan. The forest management plan developed for a TSA. The Resource Management Plan establishes the overall direction for the management of the forest and range resources under Forest Service jurisdiction in a TSA. This management direction includes the specification of production targets, provisions for other agency objectives, management strategies, directions to lower level plans and Five Year Program needs and opportunities.

19. Timber Supply Block. A subdivision of a TSA which is identified to facilitate resource management planning and timber administration. Typically, areas within a TSA which are relatively homogenous with respect to forest types, harvesting systems, or transportation routes.

20. Timber Supply Area (TSA). An integrated resource management unit established, in accordance with Section 6 of the Forest Act, as a revision to and a consolidation of the former public Sustained Yield Units. The TSA is the land unit with respect to which Resource Management planning is carried out.

21. TSA planning process. Forest management planning as carried out for TSAs in accordance with Chapter 3 of the Resource Planning Manual.

22. Visual Quality Objective. A desired level of excellence based on physical and sociological characteristics of an area. Refers to degree of acceptable alteration of the characteristic landscape.